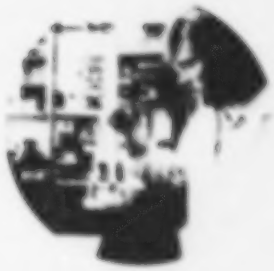
THE MANITOBA CONSULTATION FINDINGS

A Review of
The Draft
National Science
and Technology
Action Plan



MANITOBA
RESEARCH
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92-01133/

The Manitoba Consultation Findings (A Review of the Draft National Science and Technology Action Plan)

Prepared by the Manitoba Research Council

September 4, 1990

Minister of
Industry, Trade and Tourism

Winnipeg, Manitoba, CANADA
R3C 0V8

Report on Findings of the Consultation Process

Draft National Action Plan for Science and Technology

It is my pleasure to make public this report prepared by the Manitoba Research Council on a Draft National Action Plan for Science and Technology. The Manitoba Research Council is to be commended for their efforts in carrying out the comprehensive consultation process, which took place this past summer. The contents are an analysis of the comments and recommendations which will become all the more vital as they form the framework for decisions to be taken by the Council of Science and Technology Ministers.

A Draft National Action Plan for Science and Technology was developed and will be discussed by the Council of Ministers following a round of consultations taking place in each provincial jurisdiction. The action plan is Canada's attempt at a long-term strategy of action on science and technology. It represents the first time that all governments have set out the principles, goals and measures among which the various Canadian stakeholders can choose and contribute, and is intended to guide collaborative science and technology activity in Canada in the 1990's.

As Manitoba's Minister responsible for Science and Technology, I participate on a series of deliberations that occur when the Council of Science and Technology Ministers meet. The Council's make-up includes Ministers from each of the ten provinces, the two territories plus the federal minister who discuss strategies and programs to promote and stimulate the development of knowledge intensive industries.

My sincere thanks go out to all the individuals, groups and associations that took the initiative to study the draft document and prepare responses as partners and stakeholders in drafting a National Action Plan for Science and Technology.

J. A. Ernst
Minister Responsible for Science
and Technology

Manitoba

Summary

This report presents the findings of a consultation process with Manitoba stakeholders on the May, 1990, Draft National Science and Technology Action Plan. The review was conducted by the Manitoba Research Council in its capacity as Manitoba's Science and Technology Advisory Council.

The consultation process, which included advertisements in all major Manitoba newspapers as well as direct requests to 133 key individuals from 14 special interest groups, resulted in 45 briefs. Eleven of the briefs were from individuals, while 34 were from major associations or groups.

There was an overwhelming and positive response by Manitoba stakeholders for adopting the Action Plan and for early implementation of its action elements. There was strong agreement that the cornerstones of a provincial implementation plan should:

- stimulate industrial innovation
- develop a science culture
- develop human resources
- promote relevant research

The MRC advocates that resources for technological development be focused selectively on priority areas that represent a balance between building on Manitoba's traditional strengths and the development new opportunities.

A coordinated effort by all levels of government is needed to create an environment conducive to the development of globally competitive industries. The Province is urged to immediately adopt a Manitoba science and technology policy which will serve as a framework for implementing the National Action Plan.

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Introduction

This report presents results of a review by Manitoba stakeholders of the May, 1990 Draft National Science and Technology Action Plan(1)* of the Canadian Council of Science and Technology Ministers.

The review was requested (Annex 1) by Hon. J. A. Ernst, Manitoba Minister of Industry, Trade and Tourism and was conducted by the Manitoba Research Council in its capacity as Manitoba's Science and Technology Advisory Council.

The Draft National Science and Technology Action Plan proposes twenty-two action elements (Annex 7) aimed at increasing Canadian research and development, enhancing the acquisition and adoption of best practice product and process technologies and stimulating the creation and growth of technology intensive Canadian industries. The purpose of the consultation was to solicit inputs, comments, suggestions and commitments from Manitoba stakeholders - industry, government, university, schools, the general public - on the various elements of the Action Plan.

This report reviews the consultation process, presents an analysis of stakeholder responses, compares the Manitoba findings with those of other recent studies on science and technology needs and discusses the roles that the various stakeholders must play in Manitoba's growth and development. Specific conclusions are developed, based on the consultation results. Response analyses data, are included in an annexed series of tables.

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* Numbers in parentheses refer to the appended list of references

The Manitoba Consultation Process

The consultation process solicited comments from a broad cross-section of Manitobans. Initially, copies of the Action Plan were sent to 133 key individuals from 14 special interest groups (Table 1) with a request for review, comment, and commitments.

Advertisements (Annex 2) were placed in all major daily and weekly Manitoba newspapers. The advertisements asked all interested stakeholders to request a copy of the Action Plan and to take part in the consultation process. These advertisements also resulted in an interview by CBC radio and limited promotion on a series of newscasts. Table 2 lists the 68 individuals who requested copies of the Action Plan as a result of the advertising campaign.

A Profile of the Respondents

Table 1 lists all those who were approached to review the Action Plan, those who prepared briefs and those who acknowledged receipt of the request but were unable to prepare briefs. Requests to 133 key individuals resulted in 32 briefs and 12 acknowledgements, representing a response rate of 33%. The best response came from professional and business associations (40%), research institutes (70%), educational groups (57%) and cities (100%). Response from agricultural associations and marketing groups was low, while no replies were received from native and aboriginal groups or labour unions.

Table 2 shows that of the 68 individuals who requested copies of the Action Plan, from advertisements, only six returned briefs. An additional seven, who were not contacted, also submitted briefs, probably through obtaining the Action Plan from others who had been contacted.

In total, the consultation process produced 45 briefs and 12 acknowledgements.

Review of Responses

The 22 action elements from the Draft National Science and Technology Action Plan are listed in Annex 7. Annex 4 presents tables of key issues, comments and commitments of the respondents, in relation to these elements. Table 3 lists all of the briefs supporting each action element as well as those supporting other key issues brought forward by the respondents. Table 4 summarizes the major issues and commitments raised in each brief, and presents a rating of the relevance of each brief and the overall attitude of each presentation. Respondents raised an additional 22 key issues to supplement the 22 action elements.

Most briefs were overwhelmingly positive, providing strong support for the Action Plan and expressing a commitment to assist in plan implementation. Of the 45 briefs, 35 (77%) expressed very positive support for the Action Plan, five (11%) had positive comments about some elements but had reservations about others, while four (8%) did not specifically address Action Plan issues. Only one respondent had a predominantly negative reaction to the plan.

Annex 5 presents tables of priority action elements and major issues based on analysis of the 45 briefs. Table 5 ranks all action elements and other issues in order of support by the reviewers. This table was developed by assigning a score each time a specific element was supported in a brief. No attempt was made to weight responses from associations or major groups in relation to those from individuals. Eleven of the briefs were from individuals, while 34 were from associations or major groups. As is seen later, the close agreement of the consultation results with those of other recent studies on Canadian science and technology needs, indicates that failure to weight the responses did not significantly skew results.

Promoting science and technology awareness was the action element most frequently referenced, with 20 briefs (44%) addressing this issue. The following is an ordered list of the action elements most frequently endorsed by reviewers. They are listed in order of support frequency.

- #21 - Promote science and technology awareness
- # 6 - Promote government/industry collaboration on R & D
- # 3 - Expand networks of centres of excellence program
- #16 - Encourage interaction among colleges, universities and industry
- #20 - Prepare a human resource development action plan
- # 8 - Enhance the industrial innovation support efforts of government
- # 5 - Conduct directed research to develop leading edge technology
- #14 - Enhance transfer of technology and engineering knowledge to industry

#19 - Implement specific, industry-relevant human resource development initiatives

#15 - Enhance international collaboration on science and technology

#11 - Develop new policies for R & D finance and taxation

#22 - Make National S & T Week a major national event

new - Enhance funding for research and development

Table 5 also lists the priority action elements independently selected by the Planning Committee of the Manitoba Research Council's Board of Directors. There was good agreement, with the Planning Committee also having selected six of the above as priority elements.

Four Cornerstones

Table 6 organizes similar action elements and issues supported by reviewers into four major groups, which can be used a cornerstones for provincial support of the Action Plan. These four cornerstones, in order of priority, are:

1. **Stimulate Industrial Innovation**

   This first cornerstone includes enhancing the industrial innovation support efforts of all levels of government through R & D collaboration, optimization and commercialization as well as effective transfer of technology and engineering knowledge.

2. **Develop a Science Culture**

   This second cornerstone includes long term action to articulate the importance of science and technology to the future of all Canadian regions, and to develop an awareness and appreciation of science and technology which will lead to establishment of a science culture on a local, regional and national basis.

3. **Develop Human Resources**

   The third cornerstone is the development of the skilled and educated human resources needed to create and support a knowledge intensive society.

4. **Promote Relevant Research**

   The final cornerstone, involves industry, the universities, federal and provincial research organizations, and the granting councils in conducting the research needed to develop both the leading edge technologies and the techniques needed to compete effectively in international markets.

The tables in Annex 6 present significant quotations from the various briefs. Table 7 lists positive comments and significant commitments, while Table 8 lists important suggestions and observations as well as critical comments. An overwhelmingly positive response is apparent from both tables. Inadequate R & D funding, the need for improved management and quality practices, the need to establish a vision for science and technology and the need to simplify the Action Plan to improve communication, were important new issues raised by a number of reviewers.

Roles for the Stakeholders

Both from the comments of reviewers and an independent assessment of the Manitoba infrastructure, it is apparent that all stakeholders have an important role to play in successful development and implementation of the priority action elements. Implementation must include coordinating the activities of all three levels of government, as well as building on existing strengths and infrastructure.

There is a need for strong leadership to coordinate all the activities required to successfully implement the Action Plan. For example, within Winnipeg, at least three other groups in addition to the Manitoba Research Council - Winnipeg 2000, the Technology Sub-Committee of the Winnipeg Chamber of Commerce and the Technology Round Table Steering Committee - are involved in developing independent science and technology strategies. The energies of all these groups must be focused with the single goal of effectively implementing action elements.

There must be a coordinated effort by all levels of government to create an environment which fosters and supports a technology intensive society. This will have to include creative policies and programs with respect to science awareness, human resource development, industrial innovation, research and taxation.

All stakeholders must take an active part in science and technology promotion to create the positive science culture needed to build a technological society. These activities should be centred in the school system and must include both teacher training and curriculum development. As well, concentrated efforts must be made to change attitudes of the general public. Leadership is needed to coordinate awareness activities and to link with existing initiatives such as the Science and Technology Awareness Network and key groups such as the Science Teachers' Association of Manitoba.

Success of the Action Plan will depend primarily on the role that industry plays. Industry must be prepared to adopt the new technologies needed to gain a competitive edge in today's technologically advanced international markets. This will also mean long term development of new quality management programs and participating in research consortia to develop leading edge technologies for tomorrow's marketplace.

The universities, local federal research groups - (National Research Council, Whiteshell Nuclear Research Establishment, Agriculture Canada) and provincial research groups (The Manitoba Research Council) have a key role to play in coordinating their activities to build collective strengths which provide an effective research and development infrastructure for industry.

The universities, the colleges, the schools and industry all must play a coordinated role in human resource development. Programs must be developed to entice top students to enter science and engineering, to attend local universities and to stay in Manitoba after graduation. Programs must be geared to the development of technologically intensive industries.

The Manitoba Research Council, in its role as Manitoba's Science and Technology Advisory Council, has key roles to play in coordinating Action Plan implementation and in developing a plan for promoting science and technology awareness.

Comparison with Other Studies

The results of the Action Plan review are in strong agreement with conclusions resulting from a number of other recent studies on Canada's science and technology needs.

In its review of the Canadian situation, the Canadian Manufacturers Association(2) makes the following observations, which directly support a number of the key elements selected in the Manitoba review of the Draft Action Plan.

> "Aggressive economies align their resources behind a central objective: improving the ability of workers and industries to compete on an international scale -- to compete on quality, on productivity, on innovation and on time."
>
> "An aggressive economy is built on four pillars: a self help attitude on the part of management, a highly skilled work force, effective application of new technology and a public environment that promotes competitive performance."

Similarly, in its recent report summarizing the results of technology engine workshops in the Canadian communities, the Science Council of Canada(3) notes that:

> "Prosperous nations are built on prosperous communities. The challenge for Canada is to find ways to enhance international competitiveness by promoting and encouraging technologically dynamic communities and regions."

This report also notes the need for a vision and a strategy, the need to strengthen the local science and technology infrastructure, the need to develop effective local arrangements for technology transfer and the need to develop an ongoing supply of appropriate human resources.

In its second recent report, the Science Council of Canada(4) concludes that:

> "Marshalled effectively, technology can be the key to competing successfully in a global economy. Technology is an integral part of running a business today. Using technology more effectively means enhancing business opportunities and increasing profit potential."

As well as agreeing with the above studies, the priority Action Plan elements selected by the Manitoba reviewers also agree very closely with the priority elements (Annex 8) contained in the recent science policy recommendations prepared by the Manitoba Research Council(5) for consideration by the Province.

Observations and Conclusions

(1) The overwhelming and positive response by the majority of reviewers for adopting the Draft Action Plan calls for early implementation of its action elements. While reviewers indicated that the Action Plan needs to be rewritten to facilitate its promotion, local implementation should begin immediately and should not be delayed by the national approval process.

(2) There is a strong parallel between the priority elements selected by Manitoba reviewers of the Action Plan and the action elements proposed in science policy recommendations recently presented to the province by the Manitoba Research Council.

(3) There was overwhelming agreement that more needs to be done to:

- stimulate industrial innovation
- develop a science culture
- develop human resources
- promote relevant research

These issues should form the cornerstones of a provincial science and technology Action Plan.

(4) It is essential that the provincial government assume a strong leadership role in developing, implementing and coordinating the provincial Action Plan.

(5) Successful Action Plan implementation will require coordinated efforts by all levels of government and by all stakeholders to develop a vision for science and technology and to create an environment which fosters and supports a technology-intensive society.

(6) The Provincial government should take immediate steps to promote adoption of the Action Plan by the Canadian Council of Science and Technology Ministers.

(7) Although this review addresses provincial needs, Action Plan implementation must be considered in the national context.

List of References

1. Draft National Science and Technology Action Plan for Consultation. Council of Science and Technology Ministers. May, 1990.

2. The Aggressive Economy - Daring to Compete. The Canadian Manufacturers' Association. June, 1989.

3. Firing up the Technology Engine - Strategies for Community Economic Development. Joint publication of the Science Council of Canada and the Canadian Advanced Technology Association. July, 1990.

4. Grassroots Initiatives, Global Success - Report of the 1989 National Technology Policy Roundtable. Joint publication of The Science Council of Canada, the Canadian Advanced Technology Association and the Canadian Chamber of Commerce. July, 1990.

5. Technology and The Challenge for the 90's - Technology Policies for Manitoba. The Manitoba Research Council. February, 1990.

Appended Material

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Annex 2	Newspaper Advertisement
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Annex 1 Direction from the Minister on the Consultation

Minister of
Industry, Trade and Tourism

Winnipeg, Manitoba, CANADA
R3C 0V8

May 9, 1990

Mr. Russ Hood
Chair, Manitoba Research Council
c/o UMA Group
1479 Buffalo Place
Winnipeg, Manitoba
R3T 1L7

Dear Mr. Hood

As the Manitoba Minister responsible for Science and Technology, I represent the province on the Council of Science and Technology Ministers (CSTM). The CSTM met recently in Sudbury to consider a Draft National Science and Technology Action Plan. This draft plan has been prepared by a Task Force appointed by the Council at our meeting last fall. I am pleased to provide a copy of this draft document for the information and action of the Manitoba Research Council.

The action plan is intended to guide collaborative science and technology activity in Canada in the 1990's. The plan recognizes and aims to act upon the body of knowledge, advice and proposals advanced recently by science and technology advisory councils, and by organizations and associations representing various segments of the industrial and research community. The "Halifax Declaration" that resulted from the June 1989 National Forum of Science and Technology Advisory Councils has been a key input for this draft plan. The action plan contains elements spanning six issue areas: national commitment, research and development collaboration, innovation support, technology transfer/adoption/diffusion, human resources and public awareness.

At the Sudbury CSTM meeting, the Council endorsed the document's goals and proposed measures and agreed that consultation with interest groups should proceed on an urgent basis. Towards this end, Ministers agreed that their respective governments will consult with interest groups in their jurisdictions and that Ministers would meet again in September to finalize the plan based on the consultations to take place over the next few months.

My view is that it would be most appropriate for the Manitoba Research Council to undertake this consultation process on the draft action plan document as part of the Council's mandate to provide advice on science and technology matters to the province. I ask that the Council plan and proceed with a process to contact Manitoba groups and organizations outside government with an interest in this matter. The purpose is to solicit inputs, comments and ideas on the draft plan. The objective would be for Council to prepare a summary report to me on its findings, including Council's advice and recommendations on the matter, for further government consideration. Of particular interest will be Council's views on the potential for synergy between the action plan and the MRC's recommendations for a Manitoba Science and Technology Policy that you recently advanced to me. Independently, my departmental staff will be responsible for gathering views on the action plan from interested provincial government departments.

.../2

The time frame established by the CSTM for this consultative process is fairly tight as CSTM Ministers intend to be able to collate inputs and finalize the action plan when the CSTM meets in September. I therefore ask that the Council give a high priority to this process and endeavour to have the final report submitted to me no later than September 3rd.

I should point out that the draft which I am forwarding with this letter is the document that was considered by the CSTM in Sudbury. As a result of the Sudbury review some very minor editorial changes are being made and a revised version should be printed within a few days. As soon as the updated version is received I will have it forwarded to the Council.

I look forward to the Council's acceptance of this special responsibility. I view this activity as directly consistent with the Council's science and technology advisory mandate. The execution of the process will also serve to demonstrate the Council's responsibilities for these matters to the S&T community in Manitoba.

Yours truly,

J. A. Ernst
Minister

Attachments

Annex 2 Newspaper Advertisement

MANITOBA RESEARCH COUNCIL

"A National Science and Technology Action Plan"

The Manitoba Research Council, in its capacity as the Province's Science and Technology Advisory Board, is seeking advice and comments from interested groups, organizations and individuals on the Draft National Science and Technology Action Plan. This plan was developed by the Council of Science and Technology Ministers representing all provinces and regions of Canada.

Consultation is taking place across Canada and the results will become the basis for a final Action Plan by the fall. The Manitoba Research Council is coordinating the consultation on behalf of Hon. Jim Ernst, Manitoba Minister of Industry, Trade and Tourism.

There is every reason to believe that Canada's key competitive challenges in the coming decade will be technology driven. Our science and technology knowledge, skills and culture will determine our ability to produce goods and services that succeed in international markets. Canada must respond to increased globalization.

The Action Plan is Canada's attempt at a long-term strategy of action on science and technology. It represents the first time that all governments have set out the principles, goals and measures among which the various Canadian stakeholders can choose and contribute. To achieve a plan of national stature, we need your commitment and your support. All stakeholders must become partners, whether coming from the ranks of business, labour, the academic community, interested associations, or key individuals.

We invite your participation. Request a copy of the Action Plan and send your comments and ideas on actions which you as a stakeholder can agree to support and promote for the long-term benefit of Canada and Manitoba. The Action Plan is available in both English and French and the brief may be submitted in either language. All submissions should be received by June 30, 1990.

For further information, please contact:

Secretary – Action Plan Consultations
Manitoba Research Council
420-155 Carlton St.
Winnipeg, MB R3C 3H8
Tel: 204-945-1631
Toll Free: 1-800-782-0729
Fax: 204-945-1354

Annex 3 Listing of Reviewers

Table 1: List of Groups to Which Action Plan was sent with Specific Request for Response

Name of Group	Response		
	Brief Submitted	Acknowledgement Only	No Reply
1) Agricultural Businesses and Associations			
- Brewing and Malting Barley Research Institute	X		
- Canada Grains Council			X
- Canadian International Grains Institute		X	
- Canola Council of Canada			X
- Grain Elevator and Processing Society			X
- Keystone Agricultural Producers Association			X
- Manitoba Beekeeper's Association			X
- Manitoba Coop Honey Producers			X
- Manitoba Dairy Association			X
- Manitoba Greenhouse Growers Association			X
- Manitoba Pool Elevators		X	
- Manitoba Poultry and Egg Processing Association			X
- Manitoba Pulse Growers Association		X	
- Prairie Fruit Growers Association			X
- Red Meat Forum			X
- United Grain Growers Limited	X		
- Winnipeg Brewmasters Association			X
2) Agricultural Marketing Boards and Groups			
- Canadian Wheat Board		X	
- Freshwater Fish Marketing Corporation			X
- Manitoba Chicken Boiler Producers' Marketing Board			X
- Manitoba Egg Producers' Marketing Board			X
- Manitoba Milk Producers' Marketing Board			X
- Manitoba Natural Products Marketing Council			X
- Manitoba Pork			X
- Manitoba Turkey Producers' Marketing Board			X
- Manitoba Vegetable Producers' Marketing Board			X

Table 1: List of Groups To Which Action Plan Was Sent With Specific Request for Response
Page 2

Name of Group	Response		
	Brief Submitted	Acknowledgement Only	No Reply
3) Chambers of Commerce and Regional Development Corporations			
- Brandon Chamber of Commerce			X
- Central Plains Inc.	X		
- East-Man Regional Development Inc.			X
- Interlake Development Corporation Inc.			X
- Manitoba Chamber of Commerce	X		
- Norman Regional Development Corporation Inc.			X
- Parkland Regional Development Inc.			X
- Pembina Valley Development Corporation Inc.			X
- Portage la Prairie Chamber of Commerce	X		
- Winnipeg Business Development Corporation			X
- Winnipeg Chamber of Commerce	X		
- Winnipeg 2000			X
4) Cities and Municipalities			
- City of Brandon	X		
- City of Portage la Prairie	X		
- City of Thompson	X		
- City of Winnipeg		X	
5) Crown Corporations			
- Manitoba Hydro	X		
- Manitoba Telephone System			X
6) Educational Groups			
- Manitoba Association of School Trustees		X	
- Red River Community College (President)			X
- Science Teachers Association of Manitoba	X		
- University of Brandon (President)			X
- University of Manitoba (President)	X		
- University of Manitoba (Faculty Management)			X
- University of Winnipeg (President)	X		
7) Financial Groups			
- Bank of Montreal	X		
- Bank of Nova Scotia			X
- Canadian Imperial Bank of Commerce		X	
- Finalco Securities			X
- Investers Syndicate Limited			X

Table 1: List of Groups To Which Action Plan Was Sent With Specific Request for Response

Name of Group	Response		
	Brief Submitted	Acknowledgement Only	No Reply
Financial Groups - cont'd			
- Prudential-Boche Securities Canada Ltd.			X
- RBC Dominion Securities Inc.			X
- Rice Financial Group			X
- Richardson Greenshields of Canada Limited		X	
- Royal Bank	X		
- The Conwest Capital Group Inc.			X
- Wood Gundy Inc.			X
8) Legal Firms			
- Atkins, MacAulay & Thorvaldson			X
- Baker, Zivot, Radcliffe			X
- Bellon, Wasylin, Thompson			X
- Buchwald, Asper, Henteleff			X
- D'arcy & Deacon			X
- Duncan & Hoeschen			X
- Filmore & Riley			X
- Hogue, Kushnier			X
- Johnston & Company			X
- McKenzie, Mooney, Brown			X
- McRoberts Law Offices			X
- Oliver, Derksen, Arkin	X		
- Pitblado & Hoskin		X	
- Roy, Johnston, Brown, Little, Janzen, Burgess			X
- Simkin, Gallagher			X
- Skwork, Myers, Kussin, Weinstein			X
- Szewczyk, Wasel, Sundstrom			X
- Taylor, McCaffrey, Chapman, Sigurdson			X
- Tepley & Pooley			X
- Thompson, Dorfman, Sweatman			X
- Tupper & Adams			X
- Wolch, Pinx & Co.			X
9) Management Consultants			
- Coopers & Lybrand			X
- Deloitte & Touche			X
- Ernst & Young			X
- Peat, Marwick, Thorne			X
- Price Waterhouse Limited	X		

Table 1: List of Groups To Which Action Plan Was Sent With Specific Request for Response

Name of Group	Response		
	Brief Submitted	Acknowledgement Only	No Reply
10) Miscellaneous			
- Federal Industries			X
- Great-West Life Assurance Company	X		
- Intercity Gas Corporation			X
- Keystone Ford			X
- D.D. and D. J. Riley			X
11) Native and Aboriginal Groups			
- Assembly of Manitoba Chiefs			X
- First Nations Confederacy			X
- Manitoba Keewatinowi Okamakanak			X
- Tribal Council Investors Group			X
- Union Nationale Metisse du Manitoba			X
- Urban Indian Association			X
12) Professional and Business Associations			
- American Foundarymen's Society			X
- Architectural and Building Technologists Association of Manitoba Inc.			X
- Association of Consulting Engineers of Manitoba	X		
- Association of Professional Engineers of Manitoba	X		
- Canadian Inst. of Food Science and Technology			X
- Canadian Manufacturer's Association	X		
- Electronics Industry Association of Manitoba			X
- Furniture West Inc.	X		
- Institute of Chartered Accountants of Manitoba		X	
- Law Society of Manitoba			X
- Manitoba Aerospace Group	X		
- Manitoba Association of Registered Dieticians			X
- Manitoba Health Organizations Incorporated	X		
- Manitoba Fashion Institute			X
- Manitoba Feed Industry Association			X
- Manitoba Food Brokers Association			X
- Manitoba Forestry Association			X
- Manitoba Home Builders Association			X
- Manitoba Restaurant and Food Services Association			X
- Manitoba Society of Certified Engineering Technologists and Technicians Inc.	X		
- Manitoba Trucking Association			X

Table 1: List of Groups To Which Action Plan Was Sent With Specific Request for Response

Name of Group	Response		
	Brief Submitted	Acknowledgement Only	No Reply
Professional and Business Associations - cont'd			
- Mining Association of Canada			X
- Packaging Association of Canada			X
- Prairie Implement Manufacturers Association	X		
- Winnipeg Construction Association Inc.	X		
13) Research Institutes			
- Atomic Energy of Canada (WNRE)		X	
- Agriculture Canada - Brandon	X		
- Agriculture Canada - Morden	X		
- Agriculture Canada - Portage la Prairie			X
- Agriculture Canada - Winnipeg	X		
- Freshwater Institute		X	
- Health Sciences Centre Research Foundation	X		
- Manitoba Health Research Council			X
- National Research Council of Canada (CIIT)	X		
- St. Boniface Research Foundation			X
14) Unions			
- Canadian Union of Public Employees			X
- Manitoba Federation of Labour			X

Table 2: List of Those Who Requested Copies of Action Plan As Result of Newspaper Advertisement

Name	Brief Submitted
Anderson, Ms. L., Portage la Prairie	
Ben-Ari, Ms. C., Standard Aero Ltd., Winnipeg	
Bialkoski, Mr. S., Winnipeg	
Blackwood, Ms. J., Teulon	
Blicq, Mr. R., The Roning Group Inc., Winnipeg	
Campbell, Ms. A., Tech-Write Documentation Services, Winnipeg	
Candlish, Dr. B., Biomass Energy Institute, Winnipeg	
Chenier, Mr. M., Agriculture Canada, Winnipeg	
Corklin, Mr. J., Unisys Canada Inc., Winnipeg	
Cosway, Mr. F., Department of Sustainable Development, Winnipeg	
Cramer, Mr. C., Canadian Information Processing Society, Winnipeg	
Cremer, Mr. C., LGS Group, Winnipeg	
Dishinski, Mr. T., Winnipeg	
Dobbin, Mr. B., D P Consulting, Winnipeg	
Dodds, Mr. G., Winnipeg	
Duff, Mr. T., Winnipeg	
Federchuk, Mr. D., Ile des Chenes	
Gesser, Dr. H., University of Manitoba, Winnipeg	X
Goodwin, Mr. C., Dugald	
Green, Mr. M., Winnipeg	
Hawaleshka, Dr. O., University of Manitoba	
Hoemsen, Mr. R., Hoemsen & Associates Inc., Winnipeg	X
Holms, Mr. G., Winnipeg	
Hlynsky, T., Winnipeg	
Janzen, Mr. R., Winnipeg Rh Institute, Winnipeg	
Johnston, Mr. T., Winnipeg	
Klassen, Mr. K., Manitoba Energy & Mines, Winnipeg	
Lange, Mr. B., Atomic Energy of Canada, Pinawa	
Lee, Mr. N., Winnipeg	
Lightly & Smith Woodworking, Fannystelle	
Loly, Mr. P., University of Manitoba, Winnipeg	
Machie, Mr. G., Winnipeg	
MacTavish, Mr. B., Flin Flon	
McKenzie, Ms. I., Winnipeg	
McKillop, Mr. B., Manitoba Museum of Man and Nature, Winnipeg	
McMillan, Mr. R., Red River Community College, Winnipeg	
Moore, Mr. M., Winnipeg	
Morgan, Ms. L., Unisys Canada Inc., Winnipeg	

Table 2: List of Those Who Requested Copies of Action Plan as a Result of Newspaper Advertisement
Page 2

Name	Brief Submitted
Murphy, Ms. L., Starbuck	
Quarry, Mr. A., Manitoba Hydro, Winnipeg	
Raho, Mr. P., Anola	
Rhodes-Marrett, Mr. T., Winnipeg	
Robinson, Dr. H., Winnipeg Adult Education Centre, Winnipeg	
Ruehlen, Mr. B. Selkirk	
Sadler, Mr. J., Winnipeg	
Sanders, Mr. D., Unisys Canada Inc., Winnipeg	
Schulz, Mr. H., St. Boniface General Hospital Research Centre, Winnipeg	
Singh, Mr. A., Winnipeg	
Speerman, Dr. M., Winnipeg	
Speers, Mr. E., Winnipeg	
Sproule, Dr. R., R. H. Sproule and Associates, Winnipeg	
Srikameswaran, Dr. K., Winnipeg	
Standel, Dr. S., University of Manitoba, Winnipeg	
Stevenson, Mr. D., Lundar Chamber of Commerce, Lundar	
Sweeney, Mr. J., Winnipeg	
Tarkpea, Ms. N., Science Technology Awareness Network, Winnipeg	
Tennesey, Dr. W., TestLabs International Ltd., Winnipeg	
Tomlinson, Dr. G., University of Winnipeg, Winnipeg	X
Trachtenberg, Prof. S., Winnipeg	
Trupp, Dr. A., University of Manitoba	
Uzwyshyn, Mr. E., Manitoba Education, Winnipeg	X
Vadasz, Mr. J. A., Pinawa	X
VanWinkle, Mr. J., Eriksdale	
Wasiuta, Mr. H. R., Elma	X
Wasylyk, Mr. D., Winnipeg	
Westmacott, Mr. R., Winnipeg	
Wiebe, Mr. M., Iris Systems Inc., Winnipeg	
Zaadicka, Mr. D., Winnipeg	

Annex 4 Matrix of Action Plan Elements, Key Issues, Significant Responses and Commitments

Table 3: Listing of Respondents (by number) Expressing Interest in Action Plan Elements or Other Key Issues

	Action Plan Element or* Other Key Issues	Briefs Which Support or Significantly** Comment on This Element or Issue
1	Monitor Canadian Technological Performance	11, 14, 30, 42
2	Develop Action Plan Using Intergovernmental Agreements	11, 35, 39, 42
3	Expand Centres of Excellence Program	3, 7, 8, 11, 21, 27, 31, 33, 35, 36, 37, 39, 40
4	Private Research Consortia	3, 7, 11, 32, 33, 35
5	Identify Specific Research Areas	5, 7, 11, 13, 14, 27, 30, 32, 33, 35, 42
6	Promote R & D Collaboration	1, 2, 3, 4, 5, 7, 8, 11, 13, 22, 25, 27, 32, 35, 42, 43
7	Optimize Government Research Effort	3, 4, 9, 11, 30
8	Core Innovation Support	3, 4, 5, 7, 8, 11, 13, 14, 24, 35, 42
9	Unsolicited Proposals Program	7, 8, 11, 27, 31, 36
10	Procurement Levers	8, 11, 14, 33, 35, 43
11	R & D Taxation and Investment Policies and Programs	7, 11, 13, 14, 32, 33, 35, 42
12	Natural Resources R & D	8, 11, 31, 38
13	Environmental R & D	3, 8, 11, 21, 31, 38, 43

Table 3: Listing of Respondents
Page 2

	Action Plan Element or* Other Key Issues	Briefs Which Support or Significantly** Comment on This Element or Issue
14	Technology Transfer	5, 7, 8, 11, 12, 22, 24, 35, 36, 41
15	International Collaboration	3, 7, 11, 13, 30, 33, 35, 40
16	University/Industry Linkages	2, 5, 7, 11, 18, 27, 30, 31, 33, 35, 36, 39, 43
17	Patent Data	5, 11, 26, 33, 35
18	Information Sharing (Standards)	3,7, 11, 34, 35, 42, 43
19	Human Resource Development	5, 11, 18, 20, 33, 35, 36, 37, 39
20	Human Resource Actions	4, 5, 7, 11, 12, 18, 20, 21, 30, 35, 36, 37
21	S & T Awareness Fund	3, 5, 7, 10, 11, 13, 18, 20, 25, 29, 30, 32, 33, 34, 35, 36, 40, 41, 43, 44
22	National S & T Week	5, 10, 11, 13, 30, 40, 43, 44
	Other Key Issues	
-	Inadequate Funding for R & D	1, 8, 23, 35, 36, 37, 39
-	Partnerships	2, 5, 19, 25
-	Industry Efficiency and Competitiveness	2
-	R & D Commercialization	3, 27, 32, 45
-	National Commitment	5
-	Value Added Goods, Diversification	2, 5, 8, 42
-	Plant Breeder's Rights	9
-	Quality of life (social issues of S & T)	36, 37

Table 3: List of Respondents
Page 3

Action Plan Element or* Other Key Issues	Briefs Which Support or Significantly** Comment on This Element or Issue
- Emphasize **Basic** Research and Granting Council Role	35, 36, 37
- Management and Quality Practices	10, 11, 24, 31, 40
- Establish a Vision for the Policy	12, 19, 25, 31
- Need for Canadian Ownership	12
- Need for Investment in Plant, Equipment and Human Resources (Venture Capital)	13
- 2.5% GERD/GNP Goal	14, 36
- National Communication Network and Database for Assisting Teachers in S & T and for Interactive Use by Career Councillors and Students	18
- Liaison Between Community Colleges and the Canadian Technical Infra-Structure (NSERC, Federal Labs, etc.)	18, 20, 29, 35
- Collaboration and Communication Among all Stakeholders	19
- Community Based Actions	19, 31, 40, 42, 44
- Solving the Deficit Problem Needed as a First Step	19
- Action Plan is very Difficult to Read - Need to Simplify to Communicate Effectively	1, 25, 32, 35, 41
- Advance Technical Communication Skills (Degree Program and Skills Centre)	30

Table 3: Listing of Respondents
Page 4

Action Plan Element or* Other Key Issues	Briefs Which Support or Significantly** Comment on This Element or Issue
- Need a Northern Centre on Technology and Innovation	31

* Action Plan Elements are listed in Annex 8
** Brief Numbers are Listed in Table 4

Table 4: Key Issues, Quotations and Commitments of the Various Respondents

Brief Number	Respondent	Rating* of Brief	Key Issues/Quotations/Commitments	Overall** Attitude
1	Agriculture Canada, Brandon	C	- Inadequate funding for R & D - Want to cooperate and collaborate - Support Element #6 - Action Plan needs to be rewritten to simplify	(+)
2	Agriculture Canada, Morden	C	- Need partnerships - Need emphasis on industry efficiency and competitiveness - Support Elements 6, 16	(+)
3	Agriculture Canada, Winnipeg	B	- Want to advise and collaborate - Explicit agreement with elements 3, 4, 5, 6, 7, 8, 13, 15, 18, 21	(+)
4	Association of Consulting Engineers of MB	B	- Should mention use of consulting engineers especially on human resource side - R & D commercialization - Support for service sector role (IRAP rules need to be revised)	(+, -)
5	Association of Professional Engineers of MB	A	- Recommend priorities as follows: 1. national commitment 2. public awareness 3. human resources 4. technology transfer 5. R & D coordination 6. support for innovation - Supports the 12 principles of the plan - Ask for specific reference in the plan to engineering - Priority elements: 5, 6, 8, 14, 16, 17 19, 20, 21, 22	(+)
6	Bank of Montreal	C	- "Fully supportive and wish to participate in any future consultations"	(+)
7	Manitoba Aerospace Group	A	- "In complete agreement with conclusions and recommendations of action plan" - "Support winners regardless of location" - Priority elements: 3, 4, 5, 6, 8, 9, 11, 14, 15, 16, 18, 20, 21	(+)

Table 4: Key Issues
Page 2

Brief Number	Respondent	Rating of Brief	Key Issues/Quotations/Commitments	Overall Attitude
8	City of Brandon	B	- "Generally supportive of overall focus and intent of plan" - Special support for elements: 3, 6, 8, 9, 10, 12, 13, 14 - Unsolicited proposals program should be revitalized	(+)
9	Brewing & Malting Barley Research Institute	C	- Plant breeders rights - Optimize government research	( )
10	Winnipeg Chamber of Commerce Technology Sub-Committee	B	- 21, 22, (commitment to these action items needs to be strengthened) - Need a commitment on management practices	(+)
11	Canadian Manufacturer's Association, MB	B	- "We agree with the elements covered in the document and are pleased to add our sustained commitment to the plan. We offer our support in total at this time and look forward to active participation in the larger partnership required to make the plan succeed."	(+)
12	Jim Douglas	B	- Need to establish a "vision" - There is a need for emphasis on technology transfer (focus direction) - Human resource development is a key issue	(+)
13	Furniture West Inc.	A	- "Furniture West is pleased to support the action plan and to participate as a stakeholder in the consultation" - There is a need for investment in plant, equipment and people - "We shall contribute to those plan measures that are appropriate to the objectives of Furniture West" - 5, 6, 8, 14, 15, 11, 21, 22	(+)

Table 4: Key Issues
Page 3

Brief Number	Respondent	Rating of Brief	Key Issues/Quotations/Commitments	Overall Attitude
14	The Great-West Life Assurance Company	A	- We need to convince Canadians of the need for and importance of GERD/GNP = 2.5% - Government procurement to stimulate R & D in the regions (but be careful about how this is done) - Willing to provide advice and input into developing element number #11, (taxation, finance) - Will also provide advice on Elements 5, 8	(+)
15	Health Sciences Centre Research Foundation	C	- "An ambitious plan with many excellent recommendations"	(+)
16	R. Hoemsen	A	- See APEM (Brief #5) - incorporate with APEM brief	(+)
17	Holo-Descent Studios Inc.	X	- Brief is not relevant	( )
18	Manitoba Society of Certified Engineering Technicians and Technologists Inc.	A	- 19, 20, 21 - Human resource development and public awareness are major issues - Set up a national communications network and national resource database for training - Link community colleges with the national S & T infrastructure - "We are anxious to become involved"	(+)
19	The Manitoba Chamber of Commerce	A	- "The draft National Science and Technology Action Plan is an excellent document" - Stress partnerships - Need community based actions - Need collaboration and communication among all stakeholders - Must consider science and technology need in terms of other issues (such as the deficit) - Need to establish a vision for the policy	(+)

Table 4: Key Issues
Page 4

Brief Number	Respondent	Rating of Brief	Key Issues/Quotations/Commitments	Overall Attitude
20	Evhan Uzwyshyn (School Science Consultant)	A	- 19, 20, 21 (many specific recommendations) - Establish a provincial S & T coordinating directorate charged with science training of school children - Specialized high schools are needed for gifted students	(+)
21	Manitoba Hydro	A	- "Manitoba Hydro is prepared to commit resources to support the National Science and Technology Action Plan ..." - Supports the thrust of the Action Plan - 3, 13, 20	(+)
22	National Research Council of Canada (Canadian Institute of Industrial Technology)	B	- "CIIT fully supports the principles articulated in the draft Action Plan - 6, 14 - CIIT would welcome the opportunity to work closely with the Science and Technology Ministers	(+)
23	Oliver, Derksen Arkin	B	- Government should not cut corners on funding R & D - Offers assistance to MRC in promoting Action Plan	(+)
24	Prairie Implement Manufacturers Association	B	- Need to upgrade the business community in its appreciation of adopting new technology - Need continuity in government funded business support programs (such as IRAP) - "It will be interesting to see how the theoretical statements put forward are translated into tangible action steps" - 14	(+, -)
25	Price Waterhouse	A	- The vision is not readily evident nor externally focused to the appropriate extent. - Need coordinated action and leadership - Need to create an attitude - Need to simplify action plan to communicate effectively	(+)

Table 4: Key Issues
Page 5

Brief Number	Respondent	Rating of Brief	Key Issues/Quotations/Commitments	Overall Attitude
25	Price Waterhouse (continued)		- "We commend the efforts of this initiative to date" - 6, 21	
26	Prototec Mechanical Design	C	- Connect users and suppliers of manufacturing to a central database - Standards information dissemination is needed - 17	( )
27	Monte B. Raber	B	- Need a new focus for R & D commercialization - 3, 5, 6, 9, 16	(+)
28	The Royal Bank of Canada	C	- "The Royal Bank in Manitoba remains keenly interested in technological advancement in this province"	(+)
29	The Science Teachers' Association of Manitoba Inc.	A	- STAM supports the general thrust of the Action Plan - "Would be delighted to collaborate with government and industry on projects designed to build on the S & T culture in Canada" - Disappointed with the lack of importance given to the role of elementary and secondary school teachers - Need teacher/industry initiatives - 21	(+)
30	Society for Technical Communication	A	- STC should be involved in elements 1, 4, 7, 15, 16, 20, 21, 22, of the Action Plan - Initiatives are needed to advance technical communication skills - Offer to participate in public awareness efforts and National S & T Week	(+)
31	City of Thompson	A	- "The Council of the City of Thompson strongly supports all of the twelve principles the CSTM has put forward for consideration" - "We look forward to working with you on future efforts"	(+)

Table 4: Key Issues
Page 6

Brief Number	Respondent	Rating of Brief	Key Issues/Quotations/Commitments	Overall Attitude
31	City of Thompson (continued)		- 11, 9, and 3 are particularly important - 16 - Need to follow principles of sustainable development (12, 13) - Local governments need to be included in the plan - Need confidence, innovative spirit, attitudes and a vision	
32	United Grain Growers Limited	A	- "We accept and approve the general thrust of the document" - The document needs severe editing to convey its points precisely - Need to focus, define and be more precise - Need to incorporate and reflect the work of other groups such as the National Biotechnology Advisory Committee - "Increased funding for research should come from the private sector" - R & D royalties should go back to universities to fund further research - A note of caution on protecting the competitive edge (Element #4) - 5, 6, 11, 21, commercialization, focus	(+)
33	Universal Robotics (L. Oliver)	B	- "We have neither the money nor talent in Canada to do all the brave new things that are concentrated on in the Action Plan" - In general agreement with the principles of the plan - Need to minimize government involvement and programs - "What a colossal waste of time this would be ..." - Yes: 3, 4, 5, 10, 11, 15, 16, 17, 19, 21	(-)
34	The University of Manitoba (H. D. Gesser)	B	- Need a national S & T news magazine (18, 21) - "The plan is an excellent proposal - and I hope it is implemented and is successful"	(+)

Table 4: Key Issues

Brief Number	Respondent	Rating of Brief	Key Issues/Quotations/Commitments	Overall Attitude
35	The University of Manitoba (A. Naimark)	A	- "The University of Manitoba supports the overall thrust of the Action Plan put forward by the Council of Science and Technology Ministers and compliments the participants in this initiative for a constructive piece of work" - The plan needs rewriting for clarity - There is an undue reticence to refer to the universities - A glaring omission is the lack of reference to the three granting councils - Plan needs to address the inadequate supply of research funding - 2, 3, 4, 5, 6, 8, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21	(+)
36	The University of Winnipeg (H. J. Mays)	A	- "The University of Winnipeg has significant reservations about the current draft" - The draft policy is weakest in seeking solutions to problems - Inadequate funding for the three granting councils needs to be addressed - Four major weaknesses of the plan are: 1. How universities fund industry/university collaborations 2. No emphasis on basic (curiosity) research 3. Ethics and implications of S & T (Social Science and Humanities) not addressed 4. Plan does not recognize other R & D planning initiatives (such as Royal Society Studies) - Need to set a 2.5% GERD/GNP target - Qualified support of plan (3, 9, 21, 19, 20, 16, 14)	(+, -)
37	The University of Winnipeg (G. Tomlinson)	A	- The Plan has two areas of weakness: 1. Over emphasis on existing knowledge (need to emphasize basic research) 2. Insufficient attention to human resources (19, 20) - Need to address the lack of adequate financial support for university students	(+, -)

Table 4: Key Issues
Page 8

Brief Number	Respondent	Rating of Brief	Key Issues/Quotations/Commitments	Overall Attitude
37	(continued)		- Appalled by lack of reference to the quality of life and its implications on S & T (humanities, social sciences) - 3	
38	J. A. Vadasz	C-	- Does not address the plan directly - 12, 13 (indirectly)	( )
39	H. R. Wasiuta	A	- There is little new substance in the proposal - Should draw a parallel between implementation of an S & T policy and experience gained in implementing a commercial space policy (Europe, Japan, USA, USSR) - "The development of the Action Plan elements are critical to building a successful Canadian economy" - "This is an essential first step which does show considerable promise" - Need to stress the inadequate research funding - 2, 3, 16, 19	(+)
40	The Winnipeg Chamber of	A	- "The plan is quite comprehensive and touches most key issues - There are deficiencies in the plan with respect to: - Education - S & T awareness - Leadership - Community based action - There is a need for improved management practices - The Chamber commits to promoting Action Elements #3, 15, 21, 22 - The Chamber has established a sub-committee to coordinate Action Plan elements	(+)
41	The Winnipeg Construction Association Inc.	B	- "I must say that I was disappointed" - Vague expressions make it difficult to quantify what is actually to be done - 14, 21 (would support promoting awareness) - Are reserving judgement	(+, -)

Table 4: Key Issues
Page 9

42	Central Plains Inc.	B	- "Special efforts are required to address the the economic situation in rural Canada" - Need to produce and market higher value added goods - In particular, support 1, 2, 5, 6, 8, 11, 18 - Support the plan and are ready to promote it	(+)
43	Manitoba Health Organizations Incorporated	B	- "MHO is pleased to contribute to the consultative process on behalf of the Province's 150 active member facilities" - Need increasing focus on technology in health care delivery - 6, 10, 13, 16, 18, 21, 22	(+)
44	Portage la Prairie and District Chamber of Commerce	C	- Need for agricultural and food related research such as performed by MRC is critical - Public awareness is needed - Decentralization can benefit small communities	(+)
45	City of Portage la Prairie	C	- Need continued research on food and agriculture such as conducted by MRC	(+)

* Rating of Brief

Briefs were rated as follows:
A - highly relevant with specific comments
B - relevant with more general comments
C - useful but less relevant
X - does not pertain to action plan

**Overall Attitude

Respondents perception of the action plan were rated as follows:
(+) - in favour of all action plan elements
(+,-) - in favour of some elements; opposed to some elements
(-) - opposed to most action plan elements
( ) - reply does not address plan or its elements

Annex 5 Priority Elements and Major Issues

Table 5: Priority Elements

Element Number	Action Plan Element	No. of Briefs Significantly Supporting This Element
21*	Science and Technology Awareness	20
6	Promote R & D Collaboration	16
3	Expand Centres of Excellence Program	13
16*	University/Industry Linkages	13
20*	Human Resource Actions	12
8*	Core Innovation Support	11
5*	Identify Specific Research Areas	11
14*	Technology Transfer	10
19	Human Resource Development	9
15	International Collaboration	8
11*	R & D Taxation and Investment Policies and Programs	8
22	National S & T Week	8
new	Inadequate R & D Funding	7
13*	Environmental R & D	7
18	Information Sharing (Standards)	7
4*	Private Research Consortia	6
9*	Unsolicited Proposals Program	6
10	Procurement Levers	6
7	Optimize Government Research Effort	5
17	Patent Data	5
new	Management and Quality Practices	5
new	Simplify Action Plan to Communicate Effectively	5
new	Community Based Actions	5
12*	Natural Resources R & D	4
new	Partnerships	4
new	Establish a Vision for the Policy	4
new	Community Colleges to be part of Canadian S & T Infrastructure	4
1	Monitor Canadian Technological Performance	4
2	Develop Action Plan Using Intergovernmental Agreements	4
new	R & D Commercialization	4
new	Value Added Goods, Diversification	4
new	Emphasize Basic Research & Granting Council Role	3
new	Quality of Life (S & T Social Issues)	2
new	2.5% GERD/GNP Goal	2
new	Industry Efficiency and Competitiveness	1
new	National Commitment	1
new	Plant Breeder's Rights	1

Table 5: Priority Elements
Page 2

Element Number	Action Plan Element	No. of Briefs Significantly Supporting This Element
new	Need for Canadian Ownership	1
new	Need for Investment in Plant, Equipment, Human Resources (Venture Capital)	1
new	National Database to Assist Science Teachers	1
new	Collaboration Among All Stakeholders	1
new	Solving the Deficit Problem as a First Step	1
new	Programs to Improve Technical Communication Skills	1
new	Northern Centre on Technology and Innovation	1

Note

* These elements were selected as priority items at the May 17, 1990 Joint Meeting of the MRC Planning Committee and Executive Committee.

Table 6: Major Issues

Element Numbers	Major Issues	Number of Comments
6, 7, 8, 14, new	R & D Collaboration, Core Innovation Support, Technology Transfer, Optimization, Commercialization	48
21, 22, new	Awareness, Vision, Communication, Promotion	38
5, 16, new	University/Industry Programs, Specific Research, Granting Councils	29
19, 20, new	Human Resource Development, Actions, Programs	27

Annex 6 Significant Quotations

Table 7: Listing of Significant Positive Comments or Commitments

- "---the APEM endorses the principle of such a plan and will assist in promoting the implementation of the final document"
  - D.A. Ennis, Association of Professional Engineers of Manitoba

- "---the Bank is fully supportive of the initiatives proposed in the Plan and would be prepared and interested to participate in any future consultation----"
  - R. M. J. Leslie, Bank of Montreal

- "---is in complete agreement with the conclusion and recommendations of the National Science and Technology Action Plan---"
  - G. B. Sampson, Boeing of Canada Technology Ltd. (representing Manitoba Aerospace Group

- "---I am generally supportive of the overall focus and intent of the Plan."
  - R. Borotsik, Mayor, City of Brandon

- "The Action Plan is quite comprehensive and touches on most of the key elements required to enhance the use of S & T by Canadian industries to improve their competitive position in the global market-place."
  - W. R. Bullock, Bristol Aerospace (representing Winnipeg Chamber of Commerce)

- "We agree with the elements covered in the document and are pleased to add our sustained commitment to the plan. We offer our support in total at this time, and look forward to active participation in the larger partnership required to make the plan succeed."
  - A. W. Stewart, Canadian Manufacturer's Association, Manitoba Division

- "Furniture West is pleased to support the Action Plan and to participate as a stakeholder in the consultation."

- "We shall contribute to those plan measures that are appropriate to the objectives of our Association."
  - J. Sammons, Furniture West, Inc.

- "The Council of Science and Technology Ministers are to be commended for striving to set out a long term strategy of action on science and technology for Canada."

- "Great West Life has extensive expertise in investing funds on behalf of our policy holders and shareholders ---. This expertise could be very useful in providing advice and input on action #11 that calls for early review and clarification of possibility and steps regarding investments in science and technology."
  - M. J. Green, Great West Life Assurance Company

Table 7: Listing of Significant Positive Comments or Commitments
Page 2

- "---an ambitious plan with many excellent recommendations."
  - H. Buchwald, Health Sciences Centre Research Foundation

- "We are anxious to become involved ---"

- "---is prepared to assist --- on --- the development and/or updating of quality educational programs in science and technology."
  - P. C. Hur, Manitoba Society of Certified Engineering Technicians and Technologists Inc.

- "The Draft National Science and Technology Action Plan is an excellent document."
  - B. A. Kelly, Manitoba Chamber of Commerce

- "---would be prepared to commit resources to support the National Science and Technology Action Plan to the extent that specific actions are consistent with the corporations's goals for research and development."
  - R. B. Brennan, Manitoba Hydro

  "---fully supports the principles articulated in the draft National Science and Technology Action Plan."
  - M. Auld, NRC/CIIT Advisory Board

- "---would be pleased to assist on some volunteer basis should the Council wish to enlist the support of members of the public with respect to any project or committee to promote the development of the Action Plan"
  - H. J. Arkin, Oliver, Derksen, Arkin

- "---we commend the efforts of this initiative to date."
  - G. L. Hogue, Price Waterhouse

- "---I agree with the general statements and aims of the action plan."
  - M. B. Raber

- "---the Royal Bank in Manitoba remains keenly interested in technological advancement in this province---"
  - W. B. Bannister, Royal Bank of Canada

- "---supports the general thrust of the action plan addressing the science and technology challenges facing Canada in the future."

- "We would be delighted to collaborate with government and industry on projects designed to build a science and technology culture in Canada"
  - L. Rivard, The Science Teachers Association of Manitoba Inc.

Table 7: Listing of Significant Positive Comments or Commitments
Page 3

- "We welcome this Action Plan. Canada has fallen behind in its scientific development in recent years. It is time our government developed a strategy to rectify this situation."

- "Because we are placed in a wider variety of industries in Manitoba, we are well placed to assist in programs of public awareness strategies and to participate in a National Science and Technology week."
  - Society for Technical Communication, Manitoba Chapter

- "The Council of the City of Thompson strongly supports all of the twelve principles the CSTM Council has put forward for consideration"

- "---we look forward to working with you on future efforts"
  - D. G. MacLean, Mayor, City of Thompson

- "We accept and approve the general thrust of the document"

- "We would be pleased to work with you further in the future to develop the Plan into a more concrete document."
  - P. D. Earl, United Grain Growers Limited

- "The plan is an excellent proposal and I hope it is implemented and successful."
  - H. D. Gesser, University of Manitoba

- "The University of Manitoba supports the overall thrust of the action plan put forward by the Council of Science and Technology Ministers and compliments the participants in this initiative for a constructive piece of work"
  - A. Naimark, University of Manitoba

- "The move by the CSTM to develop a National Science and Technology Action Plan is both welcome and timely."
  - G. Tomlinson, University of Winnipeg

- "The development of the action plan elements are critical to a successful building of the Canadian economy"
  - H. R. Wasiuta

- "The Action Plan is quite comprehensive and touches on most of the key elements ---"

- "The Chamber is willing to promote action elements nos. 3, 15, 21 and 22 which are complementary to its objectives. It will assist or provide funds for specific programs and projects, sponsor programs, organize trade missions, promote business investments and public awareness, provide technical consultation to investors and local industries.
  - M. L. Brownstone, Winnipeg, Chamber of Commerce

- "-- to give careful study and consideration as to how we could possibly be involved in this program-."
  - G. L. Greasley, Winnipeg Construction Association

Table 8: Listing of Significant Additional Suggestions or Critical Comments

- "If any area is inadequately recognized, it is the section dealing with awareness of the importance of S & T amongst members of our society ---. ---until the general public are sufficiently aware, they will not apply pressure on politicians, educators, employers, etc, to really emphasize S & T."

- "---we trail far behind most other industrialized countries in our management practices and until or unless we improve in this area, we cannot make effective use of S & T."
  - W. R. Bullock, Bristol Aerospace (representing Winnipeg Chamber of Commerce)

- "There is a real need to educate the general public as to the contributions of the scientific community and to create an environment where Canada's youth wish to pursue a career in science or engineering."

- "---will get more bangs for the buck by supporting winners regardless of regional location."
  - B. G. Sampson, Boeing of Canada Technology Ltd. (representing Manitoba Aerospace Group)

- "---the aggressive economy is built on four pillars: a self-help attitude on the part of management, a highly skilled workforce, effective application of new technology, and a public policy environment that promotes competitive performance."
  - A.W. Stewart, Canadian Manufacturer's Association, Manitoba Division

- "We would emphasize the importance of investment both in state-of-the art plant and equipment - physical capital - and in human resources - human capital - for the growth and expansion of the provincial economy in Manitoba and the national economy in Canada."
  - J. Sammons, Furniture West Inc.

- "---the linkages between research and development in general, the R & D priorities and the desired economic goals resulting from R & D investment targets (2.5 percent of our gross domestic product by the year 2000) will have to be made very clear to all stakeholders to get their continuing commitments to the science and technology action plans."
  - M. J. Green, Great West Life Assurance Company

- "To buy in to plans implementation, people must be given a vision of what S & T can be, along with an identified source of leadership."

- "Local actions will be the key to implementing any plans."
  - B. A. Kelly, Manitoba Chamber of Commerce

- "It must not be underemphasized that a sound infrastructure in education is a prerequisite to a vibrant economy in Canada."
  - E. Uzwyshyn, Science Consultant, Manitoba Education

Table 8: Listing of Significant Additional Suggestions or Critical Comments
Page 2

- "A national strategy must involve a systematic approach to upgrade the level of knowledge in the business community so there is an aptitude and desire for research and development and the adaptation of new technology."

- "It will be interesting to see how the theoretical statements put forth are translated into tangible action steps."
  - J. Willmott, Prairie Implement Manufacturers Association

- "---we feel the overall vision for technology is not clearly spelled out in the document ---suggest a more external focus."
  - G. L. Hogue, Price Waterhouse

- "---disappointed with the lack of importance given to the role of elementary and secondary teachers in promoting science and technology awareness."
  - L. Rivard, The Science Teachers Association of Manitoba Inc.

- "We must also ensure that we develop the ability to communicate about our scientific and engineering technologies. Canada will be unable to take a leadership role in high-tech industries unless we are able to explain our products and technologies to the world."
  - Society for Technical Communication, Manitoba Chapter

- "In our opinion there are only five critical factors, for successful economic development in Canada. These have to be kept in their right order of importance and they are as follows: people, people, people, people and people."

- "The one level of government that has been left out (of any meaningful involvement) of development effort in the past has been the municipal level."
  -D. G. MacLean, Mayor, City of Thompson

- "---the document would benefit from rather severe editing to convey its message more precisely. ---The Plan itself must become much more focused, precise and defined."

- "There is, alongside the need for cooperation, the need to protect the competitive edge that R & D gives to both the individual firm and to Canadian industry."

- "---increased funding for research should come from the private sector."
  - P. D. Earl, United Grain Growers Limited

Table 8: Listing of Significant Additional Suggestions or Critical Comments
Page 3

- "---we have neither the money or talent in Canada to do all brave new things that are concentrated on in the Action Plan."

- "What a colossal waste of time this (Action item 2) would be---."
  - L. Oliver, Universal Robotics

- "The lack of reference to the three granting councils (NSERC, MRC and SSHRC) and their need for stable and expanded funding is glaring in its omission."

- "Editorially, we note undue reticence to refer to the universities as one of the three prime stakeholders in the field of science and technology."
  - A. Naimark, University of Manitoba

- "The University of Winnipeg has significant reservations about the current draft."

- "Where the draft policy is weakest is in the limited approach it takes to seeking solutions to various problems."
  - H. J. Mays, University of Winnipeg

- "---I am appalled by the near absence in the Draft Plan of any recognition that there are implications inherent in the forecast shift towards an increasingly technological society that impact on the quality of life, both human and otherwise."
  - G. Tomlinson, University of Winnipeg

- "---there was little new substance in the proposal"
  - H. R. Wasiuta

- "The Action Plan does not emphasize the need for leadership nor does it mention the importance of community level action"
  - M. L. Brownstone, Winnipeg Chamber of Commerce

- "I must say that I was disappointed."
  - G. L. Greasley, Winnipeg Construction Association

Annex 7 A Listing of the Action Elements as Stated in the Draft National S & T Action Plan

#1 That arrangements be implemented to monitor Canadian technological performance using a suite of input and output indicators.

#2 That action plan elements among governments be implemented by appropriate intergovernmental agreements including the parameters of and specific funding arrangements for these.

#3 That the networks of centres of excellence concept be extended by developing additional centres, either building on existing networks or establishing new collaborative initiatives.

#4 That increases in private sector R & D in industry be encouraged through more extensive consortia building including pre-competitive research.

#5 That initiatives be mounted to identify particular areas requiring directed research which will lead to technology transfer and leading edge technology development in industry and institutions.

#6 That initiatives be implemented to promote and assist government and non-government organizations to collaborate on R & D projects of common priority.

#7 That governments work to review and optimize their overall research effort in laboratories and institutes by identifying weaknesses, strengths and potential in R & D, organizational relationships and linkages including infrastructure needs which could be met.

#8 That a series of steps be taken to enhance the core innovation support effort of governments with industry and institutions, through intensified coordination, cooperative agreements, longer term funding, additional review and emphasis on market pull and commercial orientation in assessing projects for possible support.

#9 That initiatives be implemented to establish an unsolicited proposals program.

#10 That proposals be developed and implemented for improved use of procurement by all orders of government for advanced technology development in regions.

#11 That an early review and clarification of investment and taxation issues be undertaken to determine appropriate next steps.

#12 That initiatives be implemented to encourage companies engaged in natural resource activities across industry sectors to undertake R & D and innovation.

#13 That initiatives be implemented to stimulate environmental R & D and stimulate adoption of specific measures for pollution-free technologies.

#14 That technical/engineering cooperation initiatives be adopted with the objective of providing engineering and technical personnel with experience to assist companies to acquire technology, initiative R & D or transfer and diffuse technology.

#15 That initiatives be implemented to enhance Canada's international collaboration on technology and knowledge transfer.

#16 That initiatives to further encourage university-industry and college-industry linkages be developed and implemented.

#17 That initiatives to automate and improve dissemination of Canadian patent data be undertaken.

#18 That networks be developed and put in place to improve the sharing of intelligence on R & D, S & T trends and national standards.

#19 That the CSTM perspective on human resource requirements be forwarded to the steering committee of the proposed First Ministers' task force on human resource development and that appropriate linkages be established in this regard.

#20 That the CSTM develop a package of industry-related human resource development needs and proposals for submission to the proposed First Ministers' task force on human resource development and consider specific initiatives which could be implemented during the period of operation of this task force.

#21 That a longer term commitment be established to fund S & T awareness including priority initiatives on industry, media and elementary/secondardy school science teacher/counsellor awareness.

#22 That the National Science and Technology Week become a major annual cooperative event involving broad participation and representation from all stakeholders.

Annex 8
Manitoba Research Council Science and Technology Policy Recommendations
February, 1990

1. Build upon the existing base of national and provincial policies and actions, recognizing the shared leadership responsibilities that exist within the public and private sectors to stimulate and support economic development based on Science and Technology (S & T). Establish a public policy environment that encourages and facilitates private sector activity. Use of S & T to improve global competitiveness.

2. Recognize the strong relationships between S & T, economic development, and wealth generation, by focusing on the application of S & T to create, produce, and maintain competitive, tradeable, goods and services.

3. Focus technological development resources on selected technology and economic development areas, on the basis of need, fit, and potential for success. Balance the selection of priority areas for technology development effort between building on Manitoba's abiding, traditional strengths and the development of new opportunities.

4. Strengthen the interaction between industry and the S & T community, including federal and provincial institutions, universities, and the community colleges.

5. Implement a communications policy to emphasize the role that science and technology plays as a generator of wealth that supports our quality of life.

6. Encourage research activity that is targeted towards the needs of Manitoba industry and/or Manitoba's resources, capabilities, potential and advantages. Encourage actions that improve the capacity and capability of Manitoba firms to undertake R & D.

7. Support university research and its linkages to industrially defined requirements. Encourage and continue to support educational institutions to produce the labour market skill levels and training required by local industry.

8. Expand upon existing technology commercialization initiatives and to encourage the expansion of management resources and services appropriate to meet the challenge of technological development and marketing needs of wealth generating ventures.